CLAIMS

I claim:

1. An apparatus, comprising:

a first substrate;

an optoelectronic device formed on the first substrate, the optoelectronic device having a frequency response; and

a matching circuit formed on the first substrate and coupled to the optoelectronic device to change its frequency response.

2. An apparatus as in claim 1, further comprising:

a driver circuit that communicates with and controls the optoelectronic device.

3. An apparatus as in claim 2, further comprising:

a second substrate, wherein the driver circuit is formed on the second substrate.

4. An apparatus as in claim 3, wherein the matching circuit is selected to match the frequency response of the optoelectronic device to the driver circuit for optimal performance.

5. An apparatus as in claim 4, wherein the optoelectronic device is a Vertical Cavity Surface Emitting Laser (VCSEL).

6. An apparatus as in claim 4, wherein the optoelectronic device is an edge-emitting diode.

7. An apparatus as in claim 4, wherein the matching circuit includes a passive device from the group consisting of inductors, capacitors, resistors, stubs, and diodes.

8. An apparatus as in claim 4, wherein the optoelectronic device is flip-chip mounted to the auxiliary circuit.

9. An apparatus as in claim 1, further comprising:

an amplifier that communicates with and amplifies a signal from the optoelectronic device.

10. An apparatus as in claim 9, further comprising:

a second substrate, wherein the amplifier is formed on the second substrate.

11. An apparatus as in claim 10, wherein the matching circuit is selected to match the frequency response of the optoelectronic device to the amplifier for optimal performance.

12. An apparatus as in claim 11, wherein the matching circuit includes a passive device from the group consisting of inductors, capacitors, resistors, stubs, and diodes.

13. An apparatus as in claim 12, wherein the optoelectronic device is a photosensor.

14. An apparatus as in claim 13, wherein the photosensor is flip-chip mounted to the amplifier.